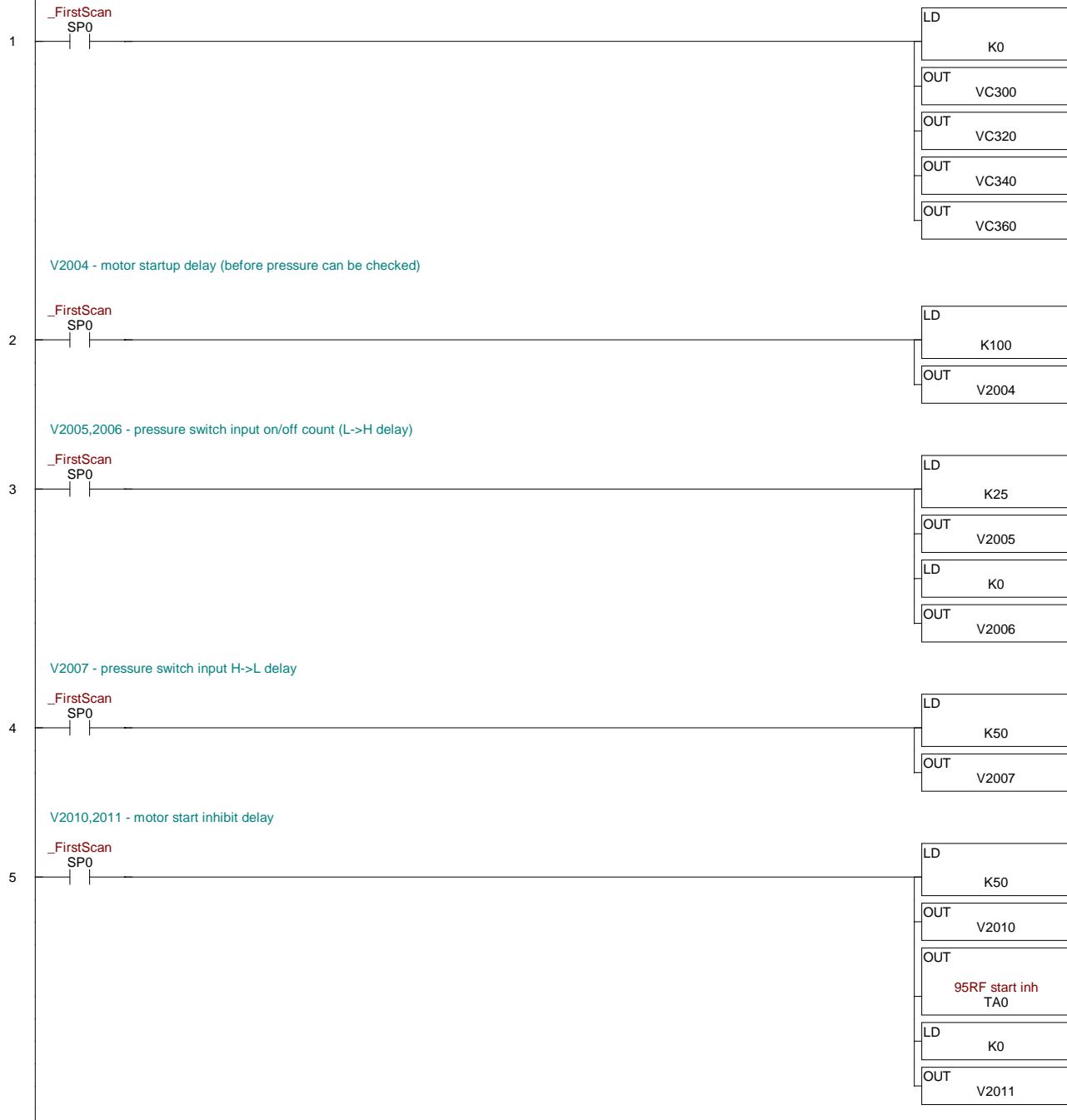


**SECTION 1. INITIALIZATION**

The Optimate annunciator is set up to use V40614-V40617 (C300-C377).  
 C300-337 - Annunciator panel lamp on/off  
 C340-377 - Annunciator panel lamp flash



**REMOTE I/O SETUP**

Remote outputs appear at Y20-Y67  
 Y20-Y27 F2-08TRS relay card  
 Y30-Y37 F2-08TRS relay card  
 Y40-Y57 D2-16TD2-2 DC output card  
 Y60-67 F2-08TRS relay card

a. Write the configuration byte



b. Write V-output memory address to master



c. Write number of outputs to master



d. Write number of outputs on slave 1 to master

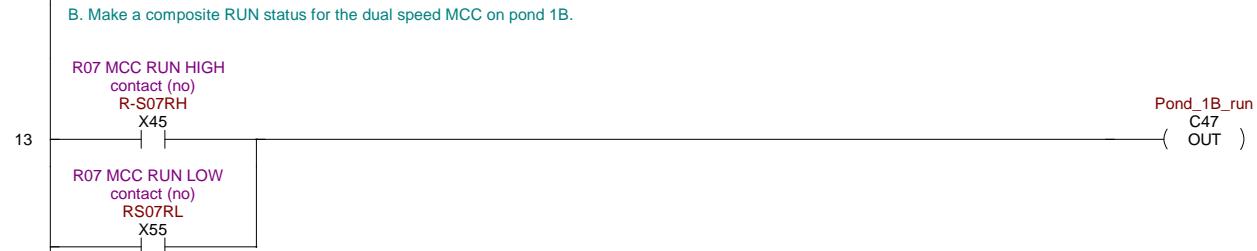
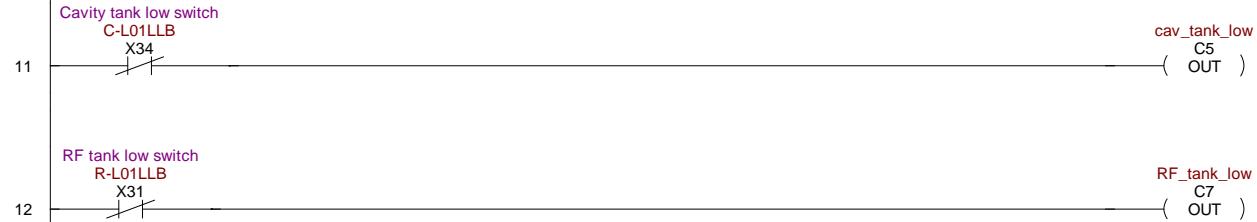




## SECTION 2. INPUT CONDITIONING

## A. Input signal inversions

Invert X-signals to C-intermediates as needed

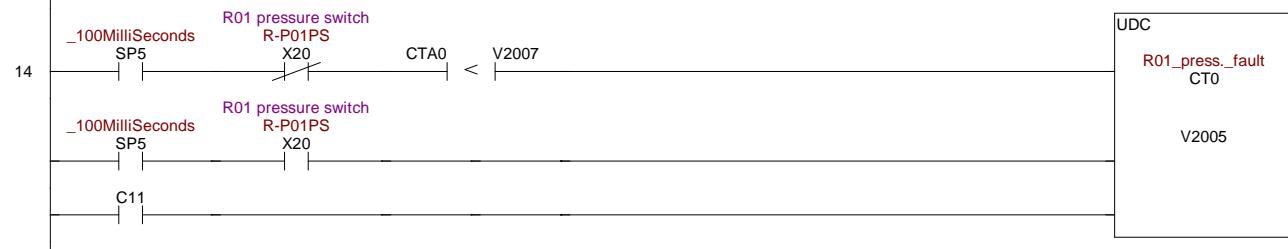


## C. Apply delay and hysteresis to the eight pressure switch inputs.

All eight pressure switch inputs are handled identically. The pressure switch is closed for normal operation. It opens when the pressure drops below nominal, indicating a fault.

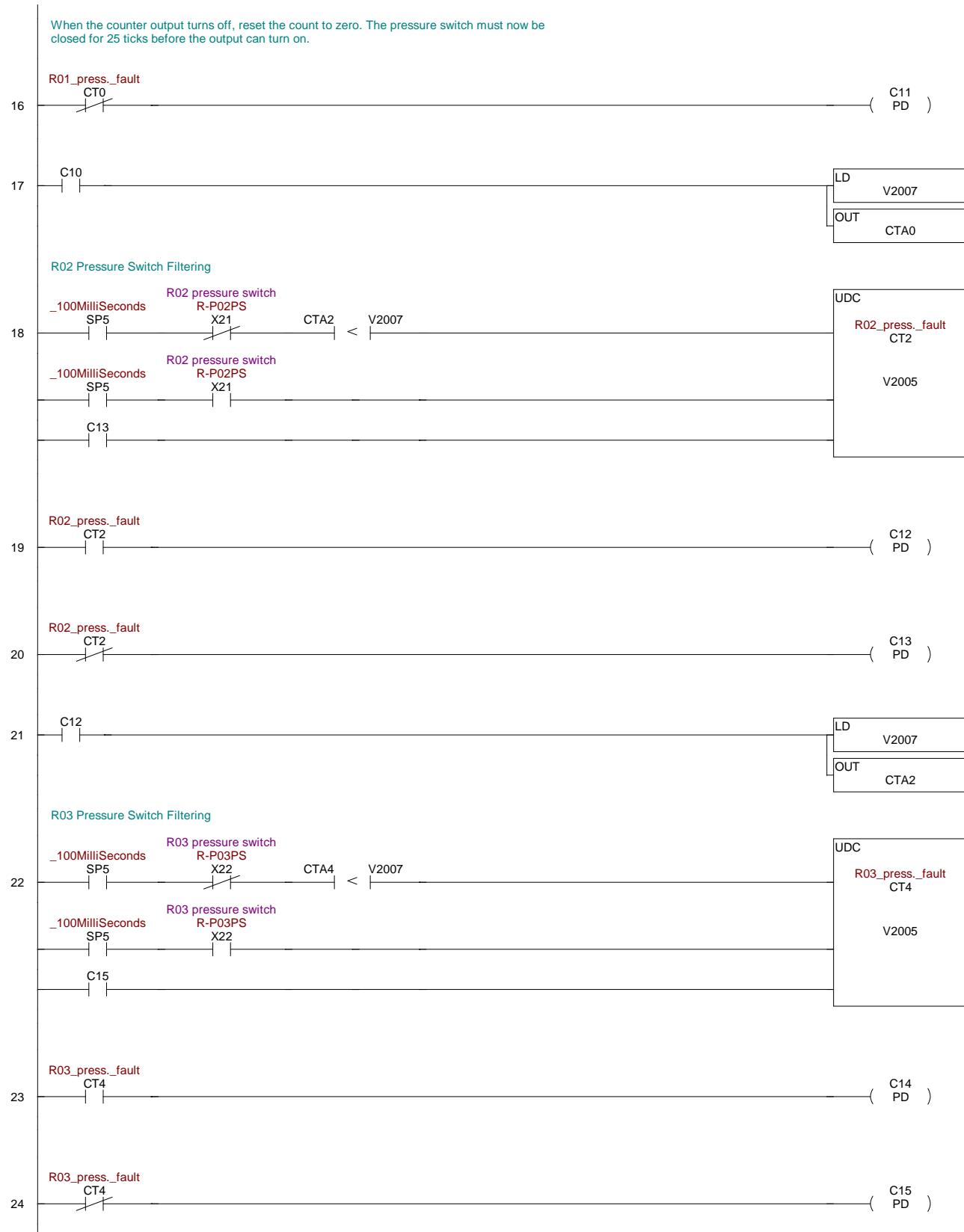
## R01 Pressure Switch Filtering

Count up at a 100ms rate if the pressure switch is closed. Disable upcounting at 50. Count down at 100ms/tick if the pressure switch is open. Countdown is disabled at 0. Activate the output when the count is above 25.



When the counter output turns on, fire a one-shot to kick the count to 50. The pressure switch must now be open for 25 ticks before the counter output will turn off.



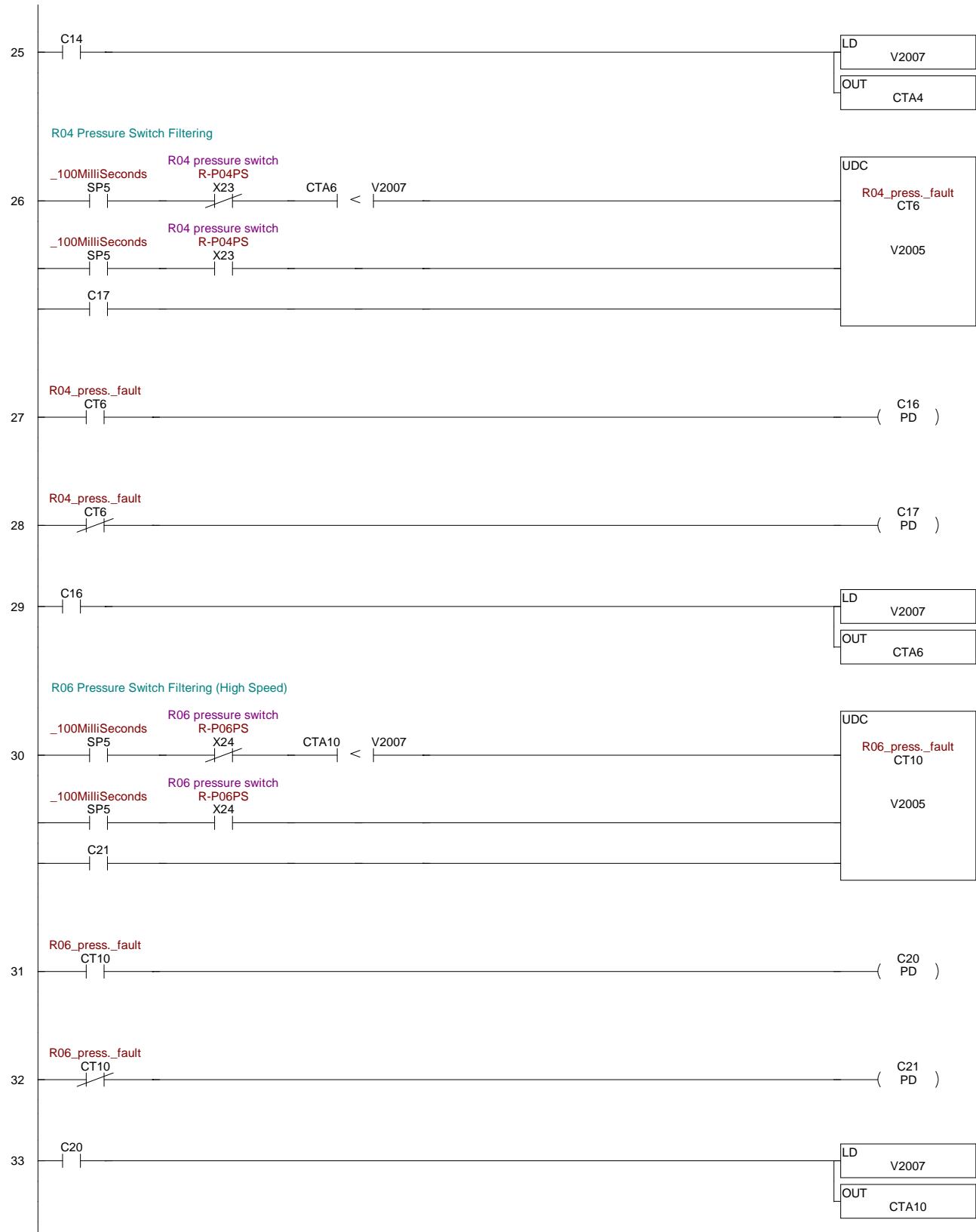


2/1/2001

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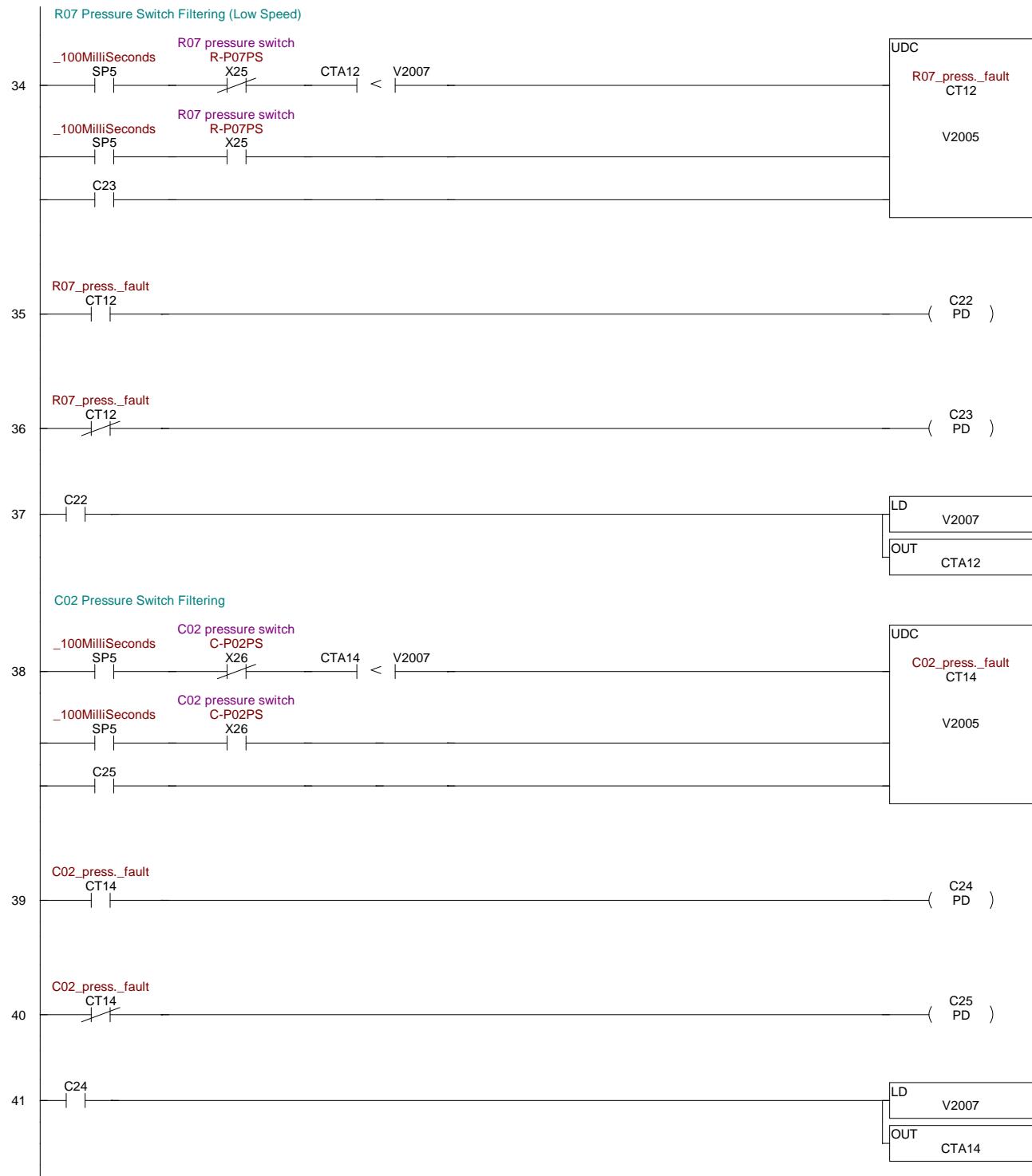


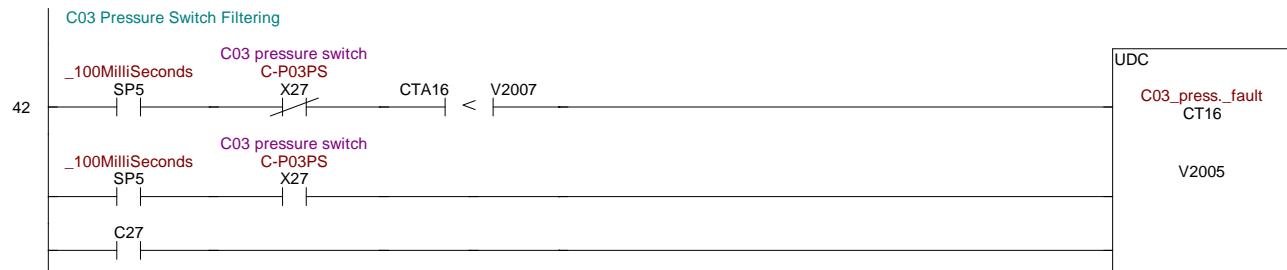
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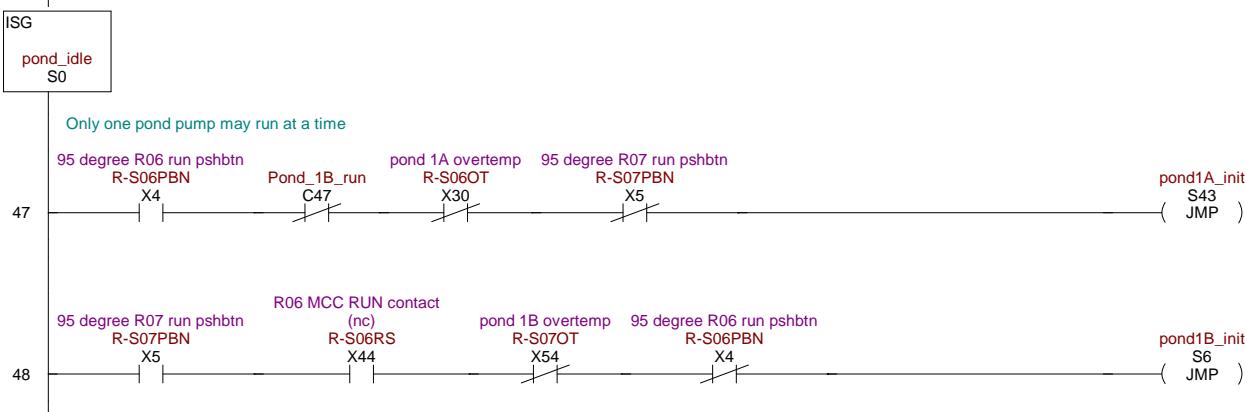
### SECTION 3. POND PUMP CONTROL

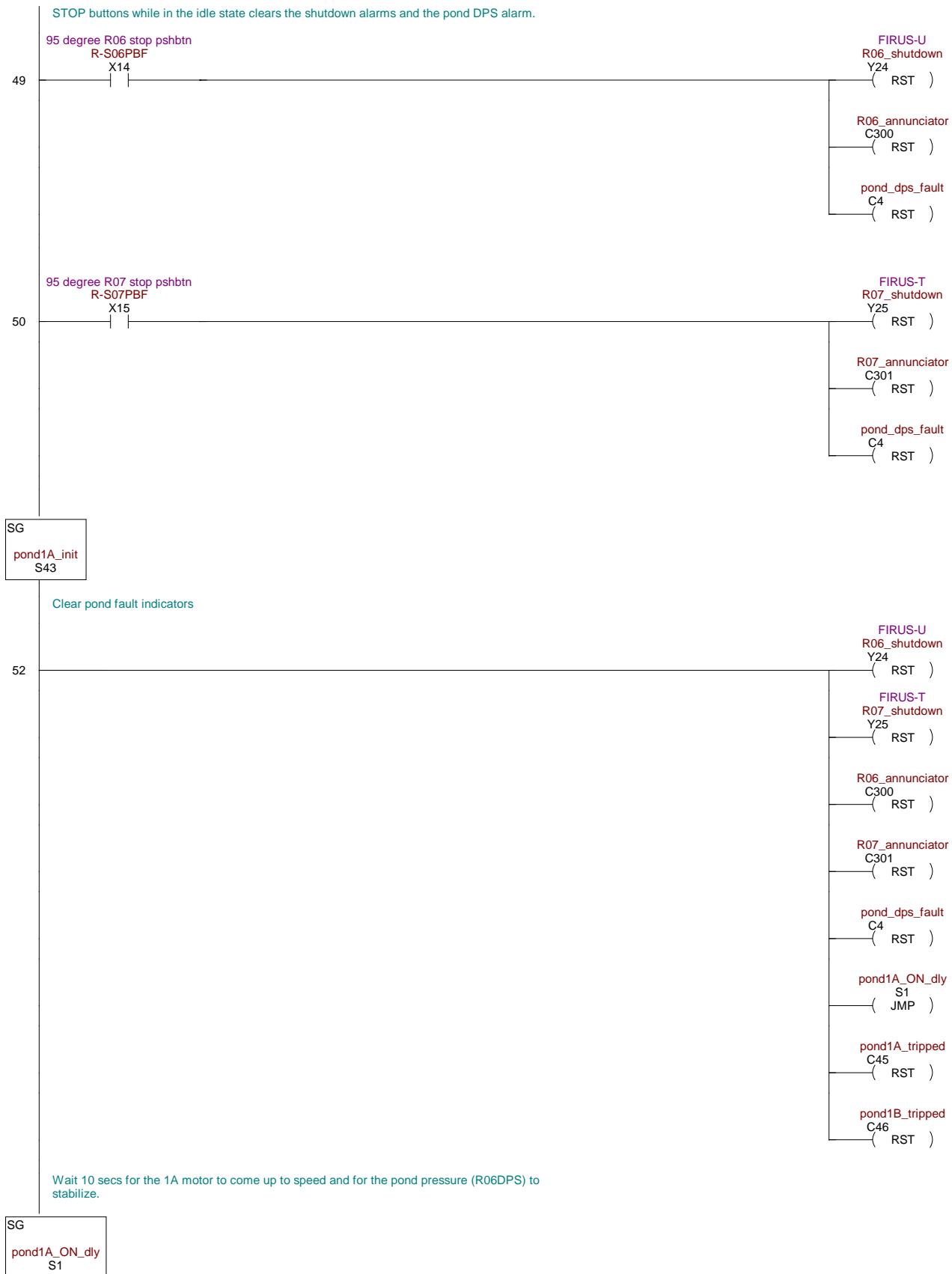
This section implements the pond pump control state machine. R06 is pond pump 1A and R07 is pump 1B. Only one pump may run at a time. The manually-started pump is considered primary and the stand-by pump is secondary. Both pumps are idle at start-up.

The primary pump runs until it is turned off from the front panel or a fault occurs. For either a pond pressure fault or a motor overtemp fault, the primary pump is shut down and the shutdown is sent to FIRUS, the annunciator, and ACNET. The secondary pump is then started.

The secondary pump runs until it is turned off from the front panel or a fault occurs. For either a pressure or overtemp fault, the shutdown is sent to FIRUS, ACNET, and the annunciator. No attempt is made to restart the primary. Both pumps will remain off until an operator manually selects and starts a pond motor.

The pond pumps are NOT interlocked to the sump level signal.



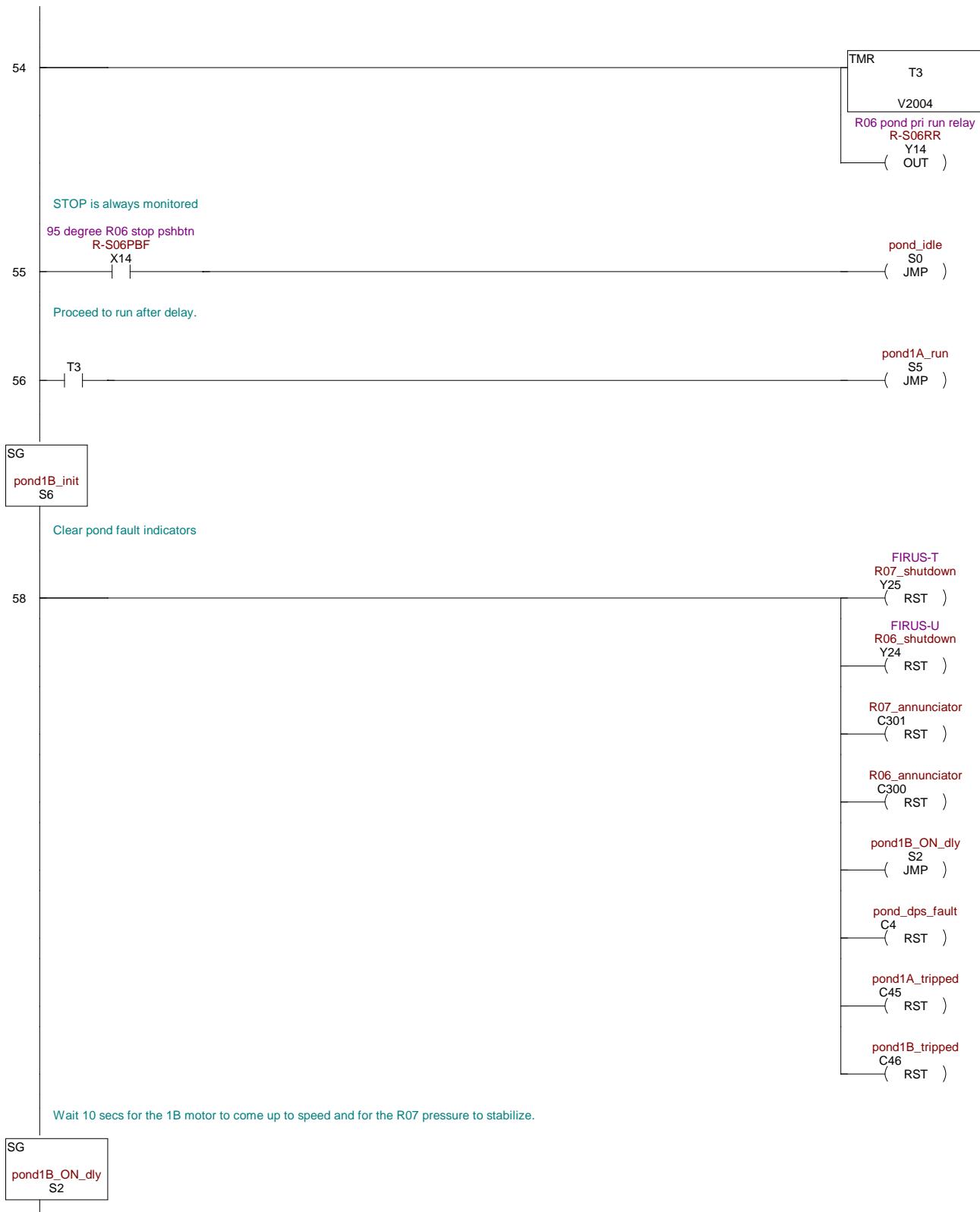


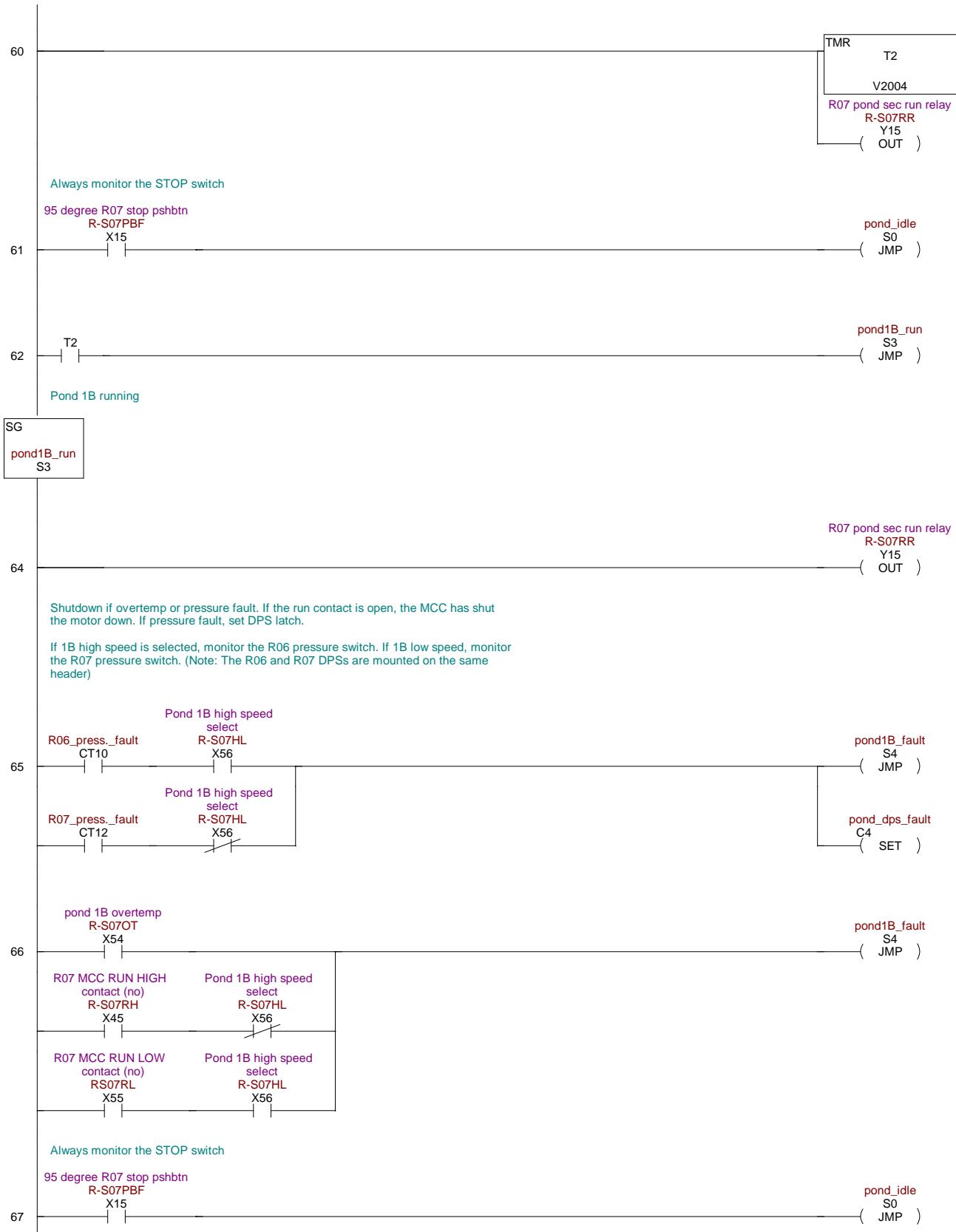
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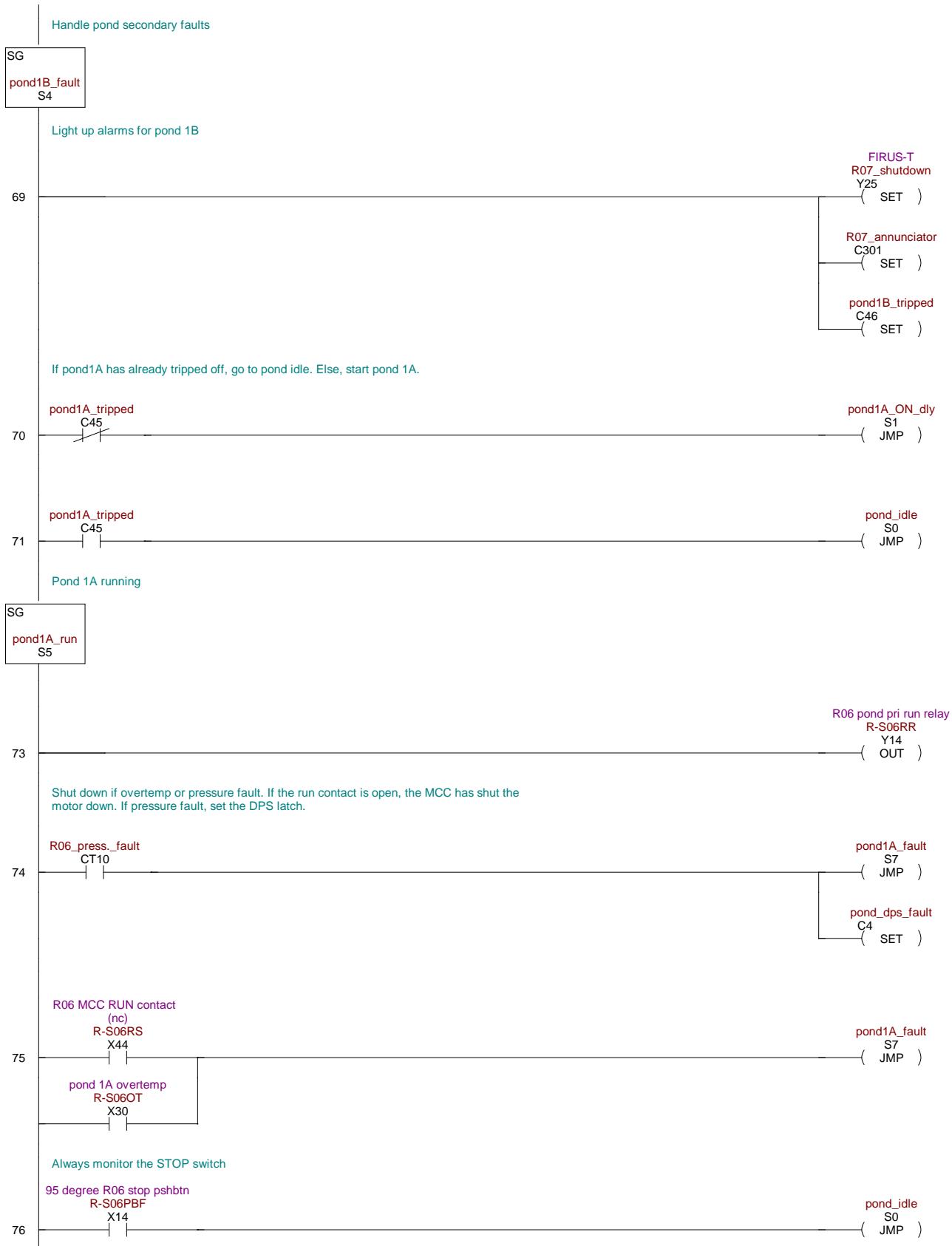
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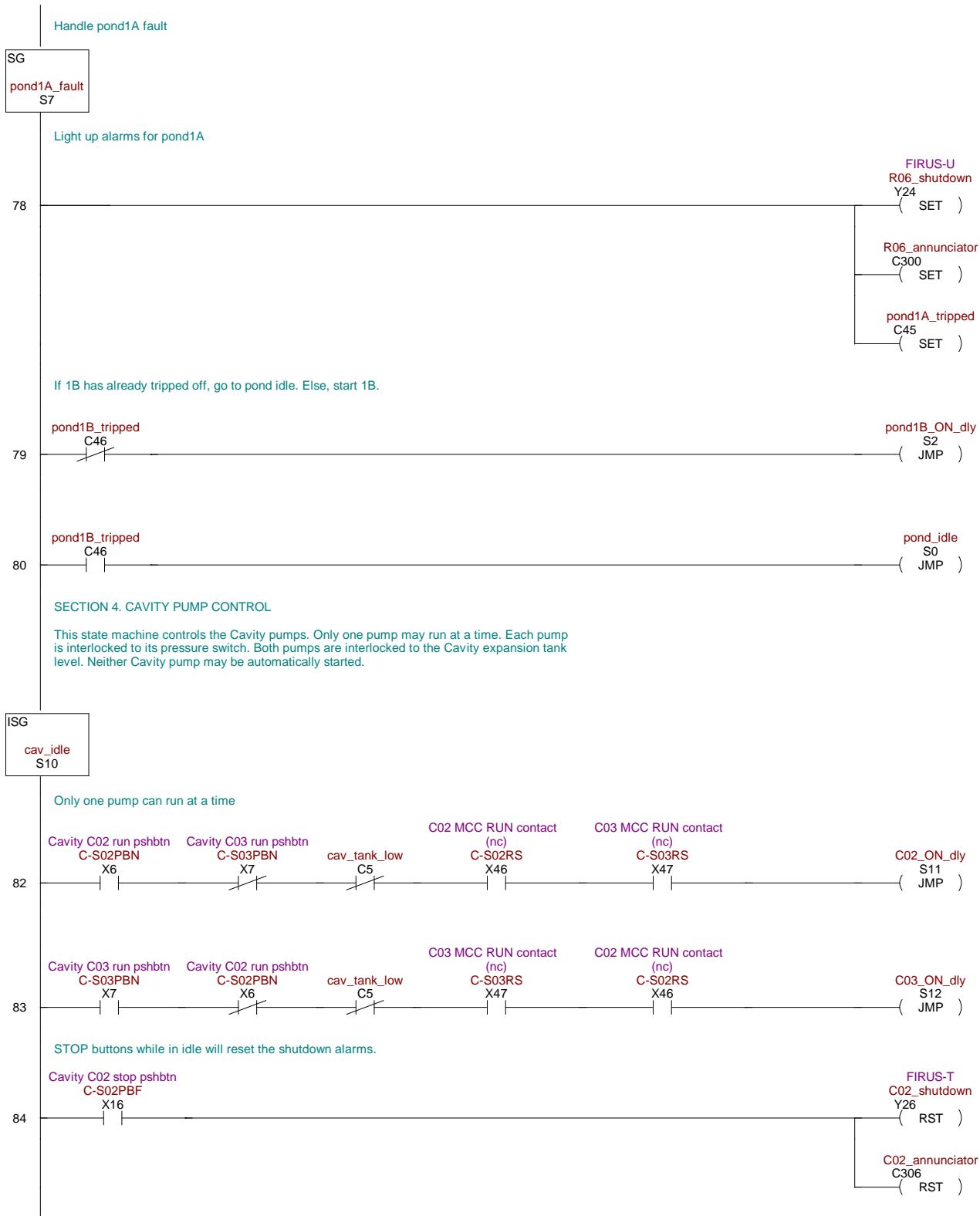
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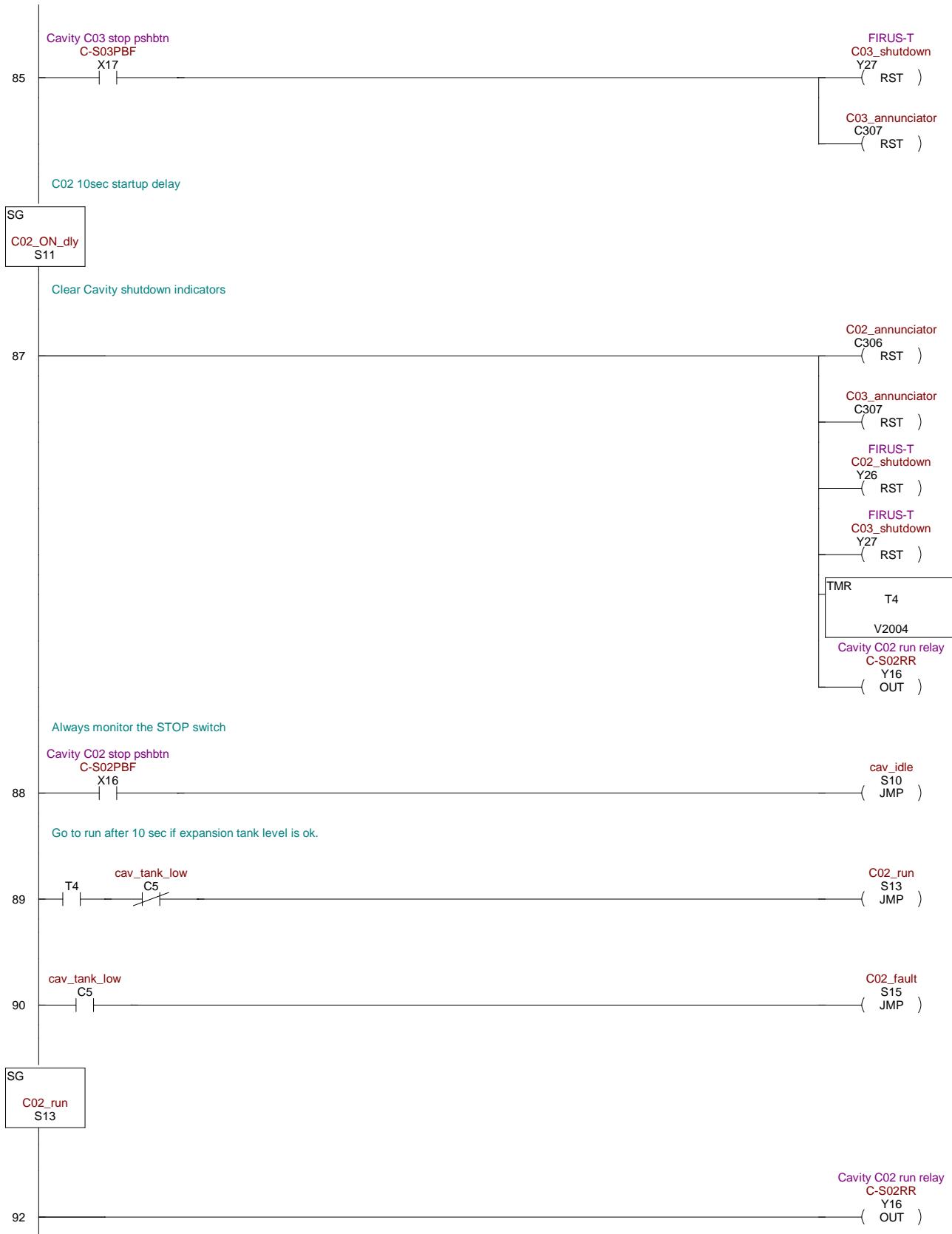
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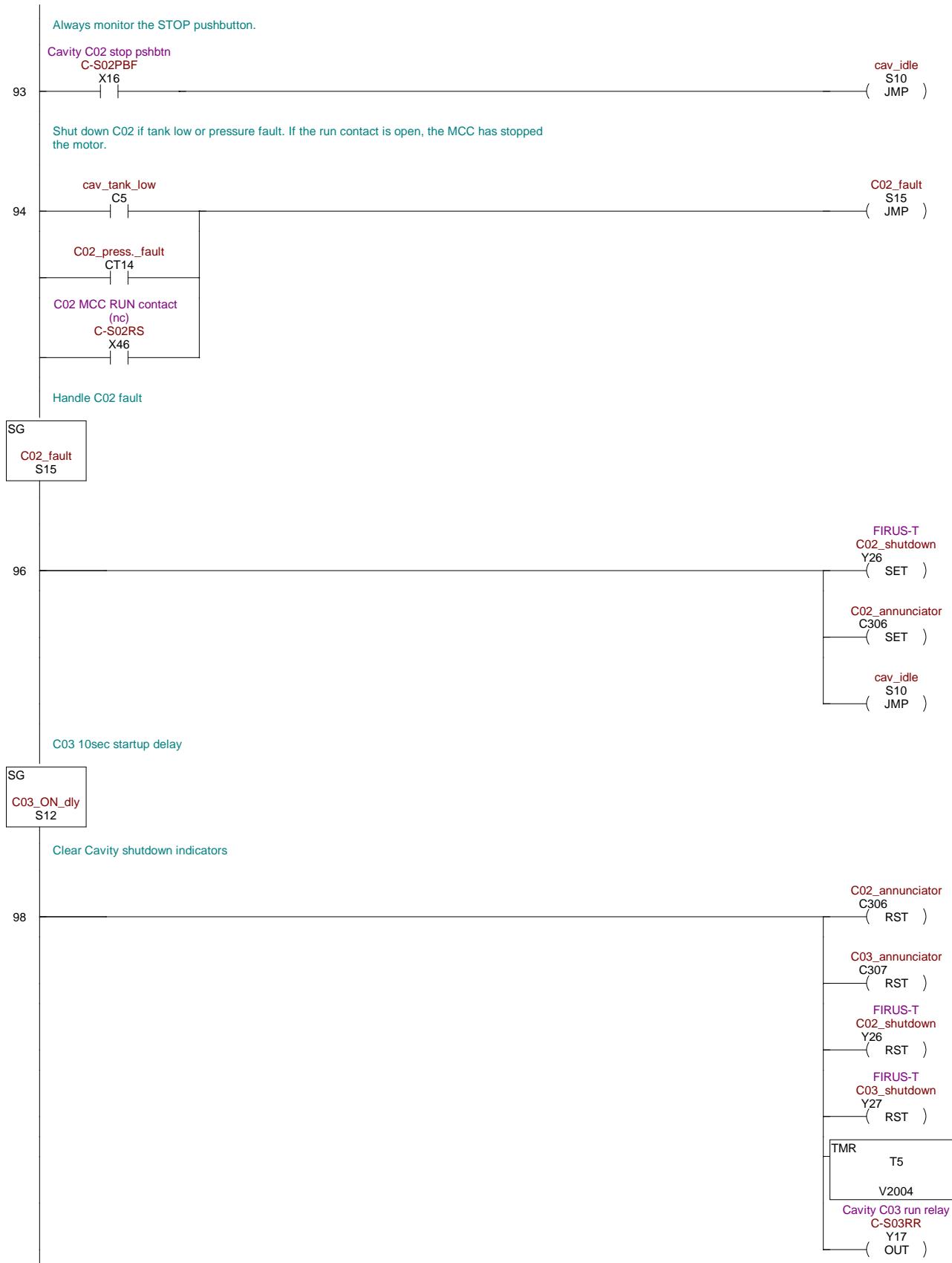


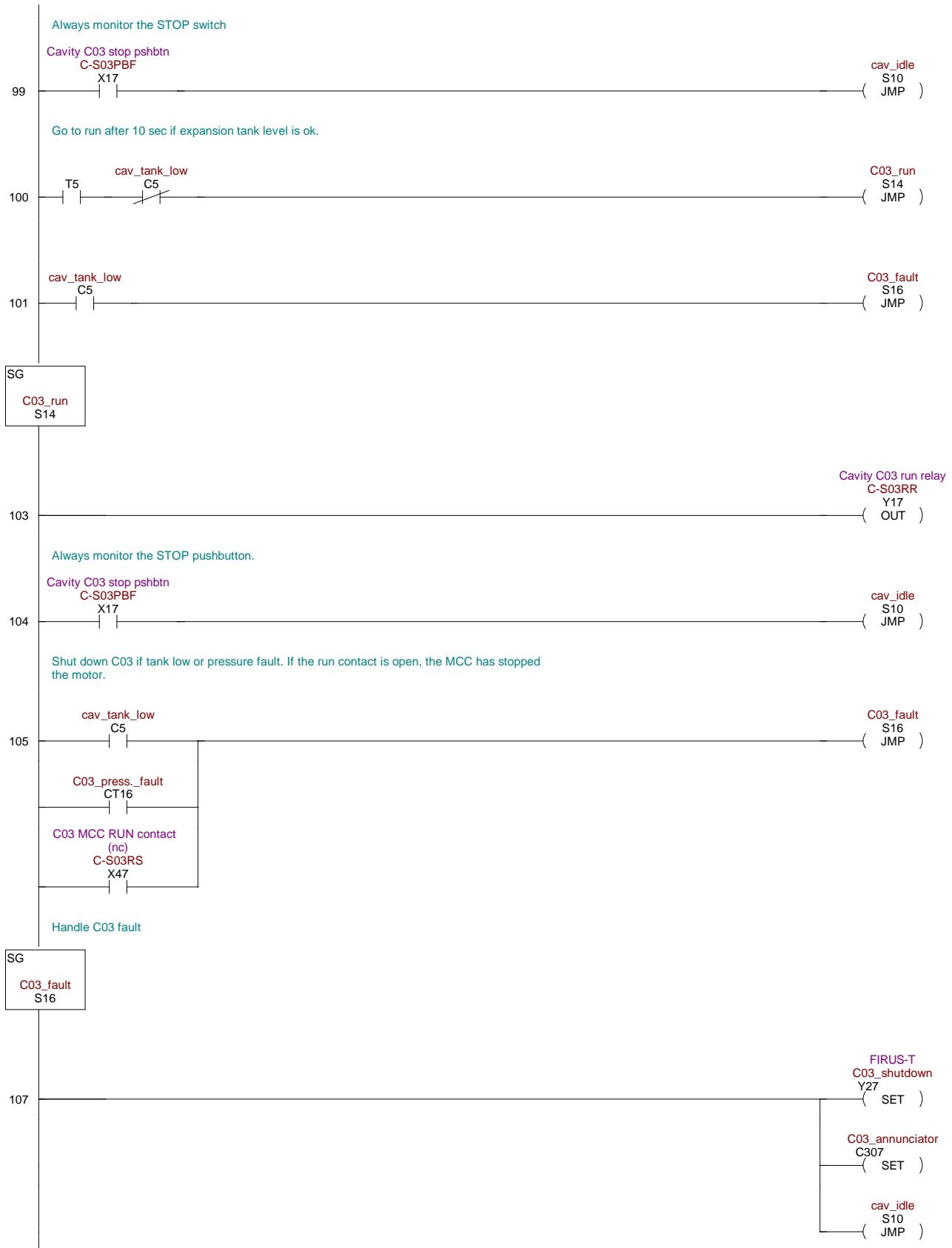










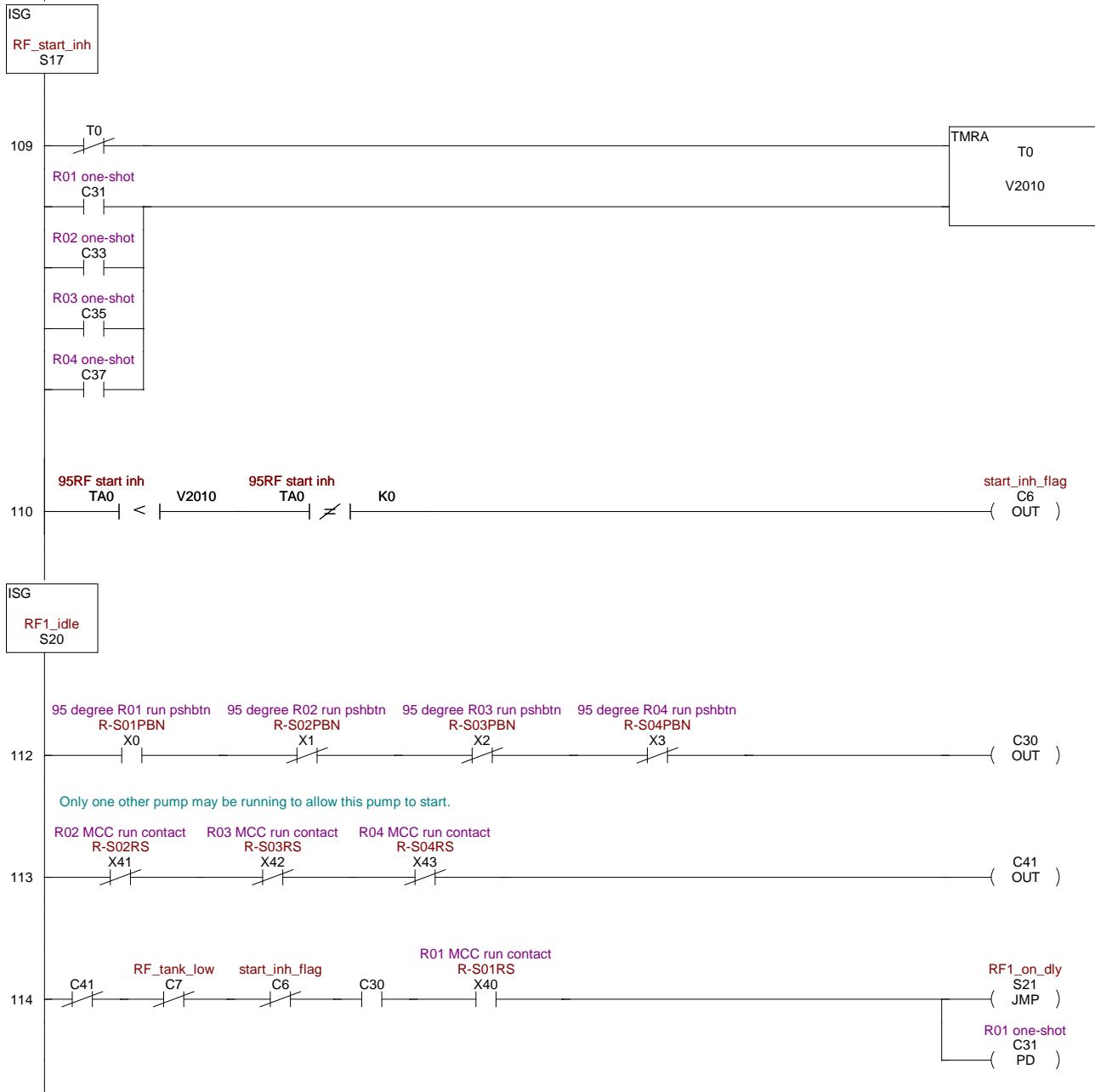


### SECTION 5. RF-95 degree Pump Control

Each RF pump is controlled by a separate state machine. No more than two of the four pumps may be running at any time. After a pump is started, there is a 5 second period during which no further pumps may be started. Any pump may be stopped at any time. Each pump is interlocked to its corresponding pressure sensor. There is a 10 second delay from the time that a pump is started until the pressure sensor is checked. All pumps are interlocked to the RF expansion tank level.

A shutdown alarm for any pump can be cleared either by restarting the pump or by pushing the STOP button when the pump is off.

T0 is the 5 second motor-start inhibit timer.

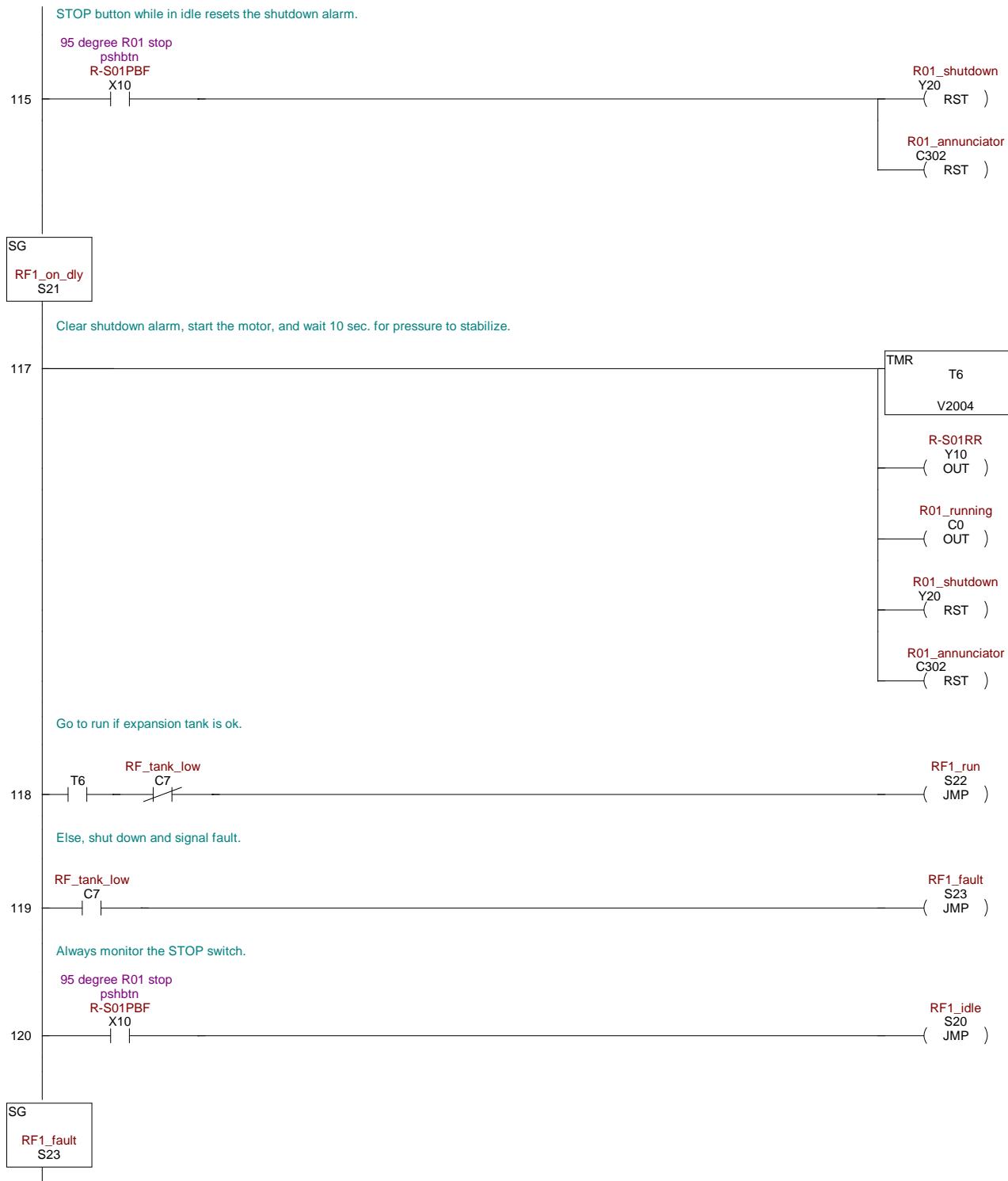


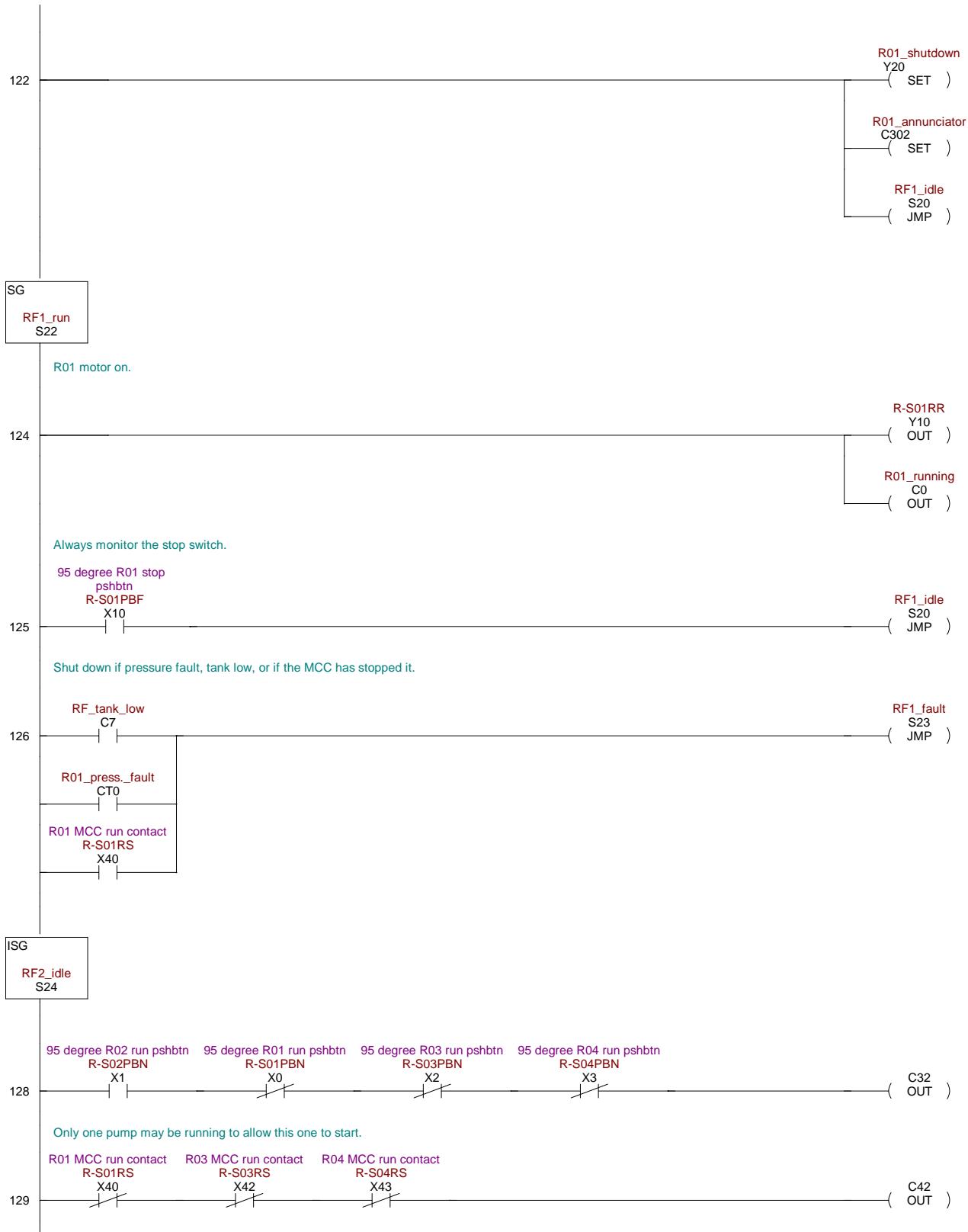
2/1/2001

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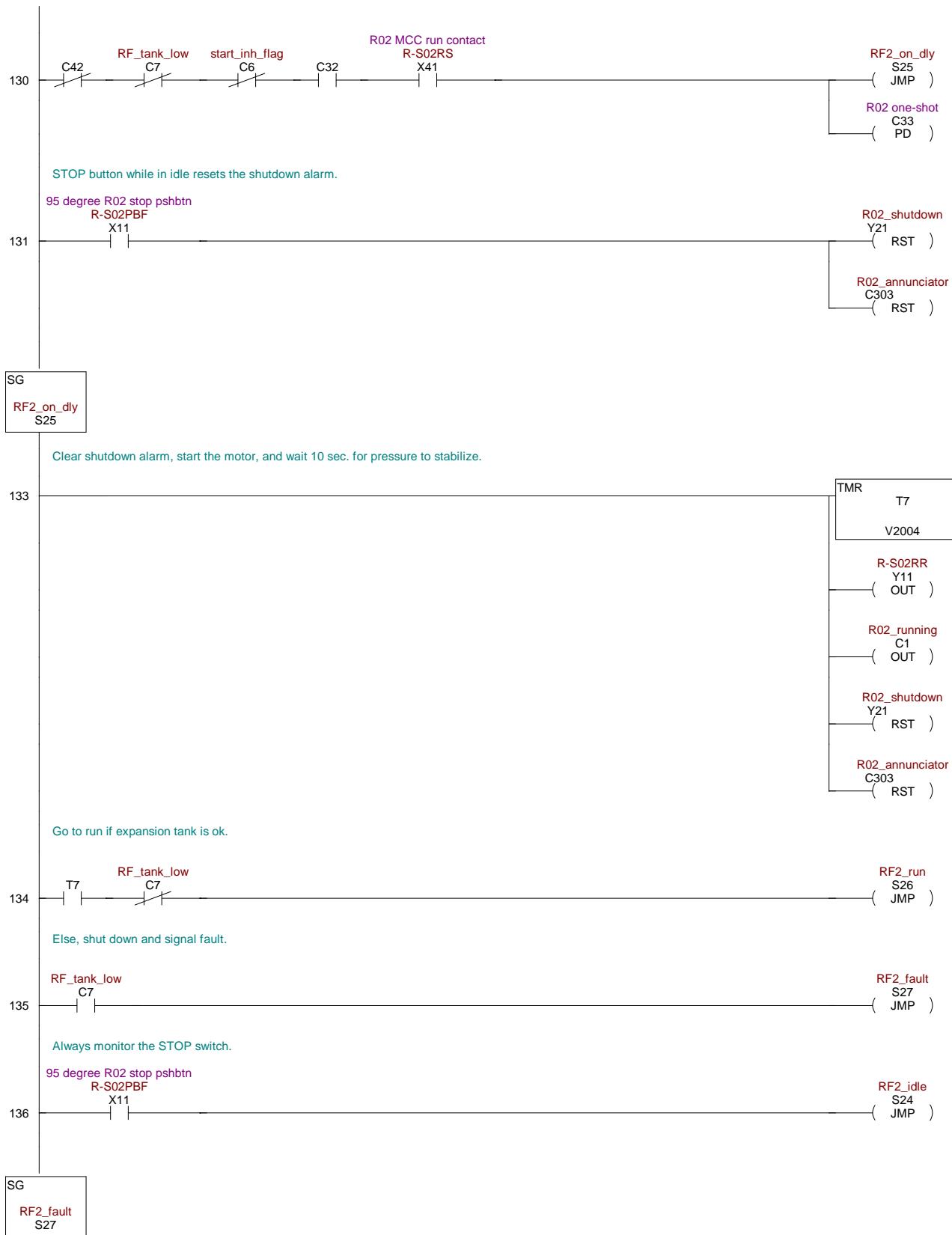


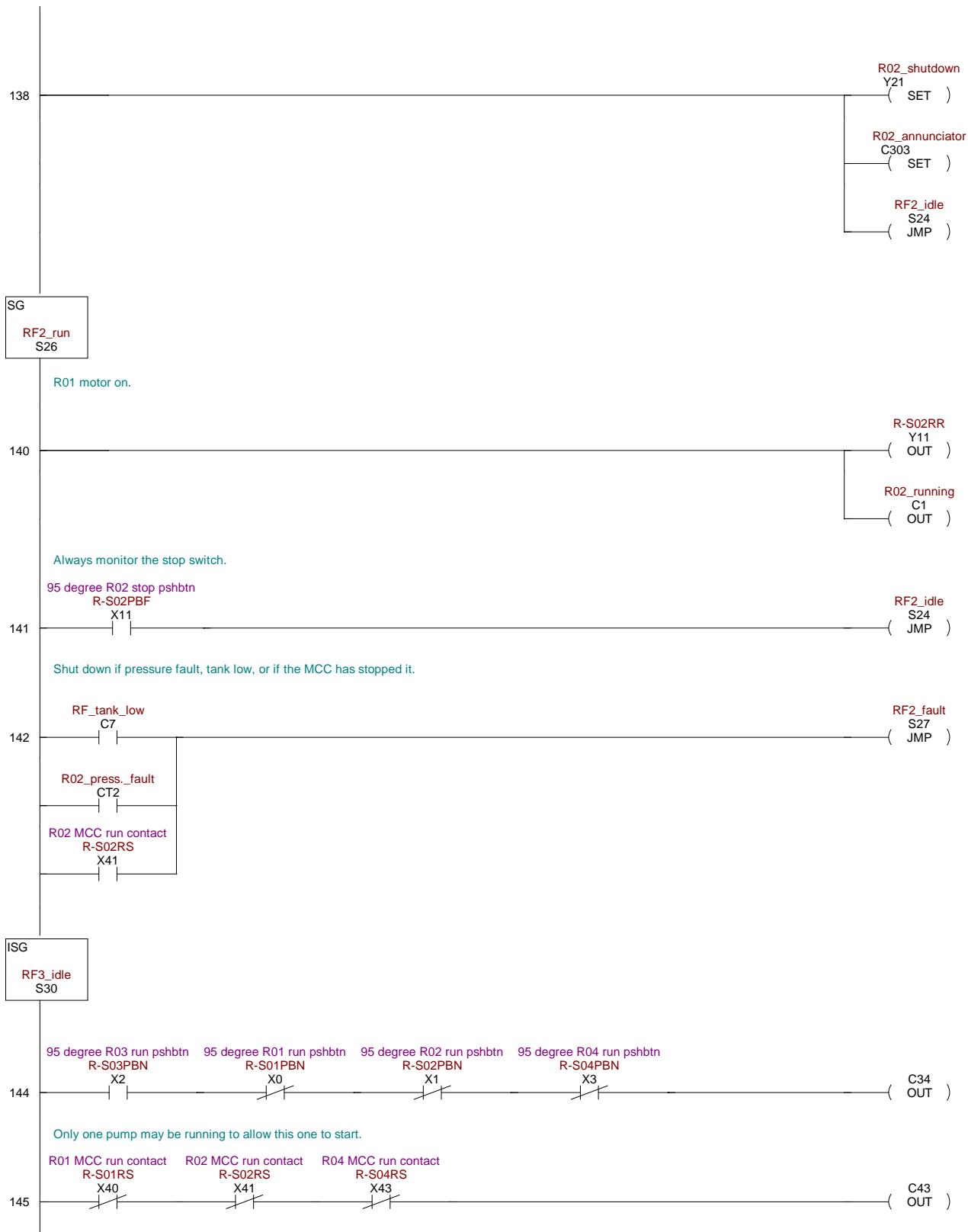
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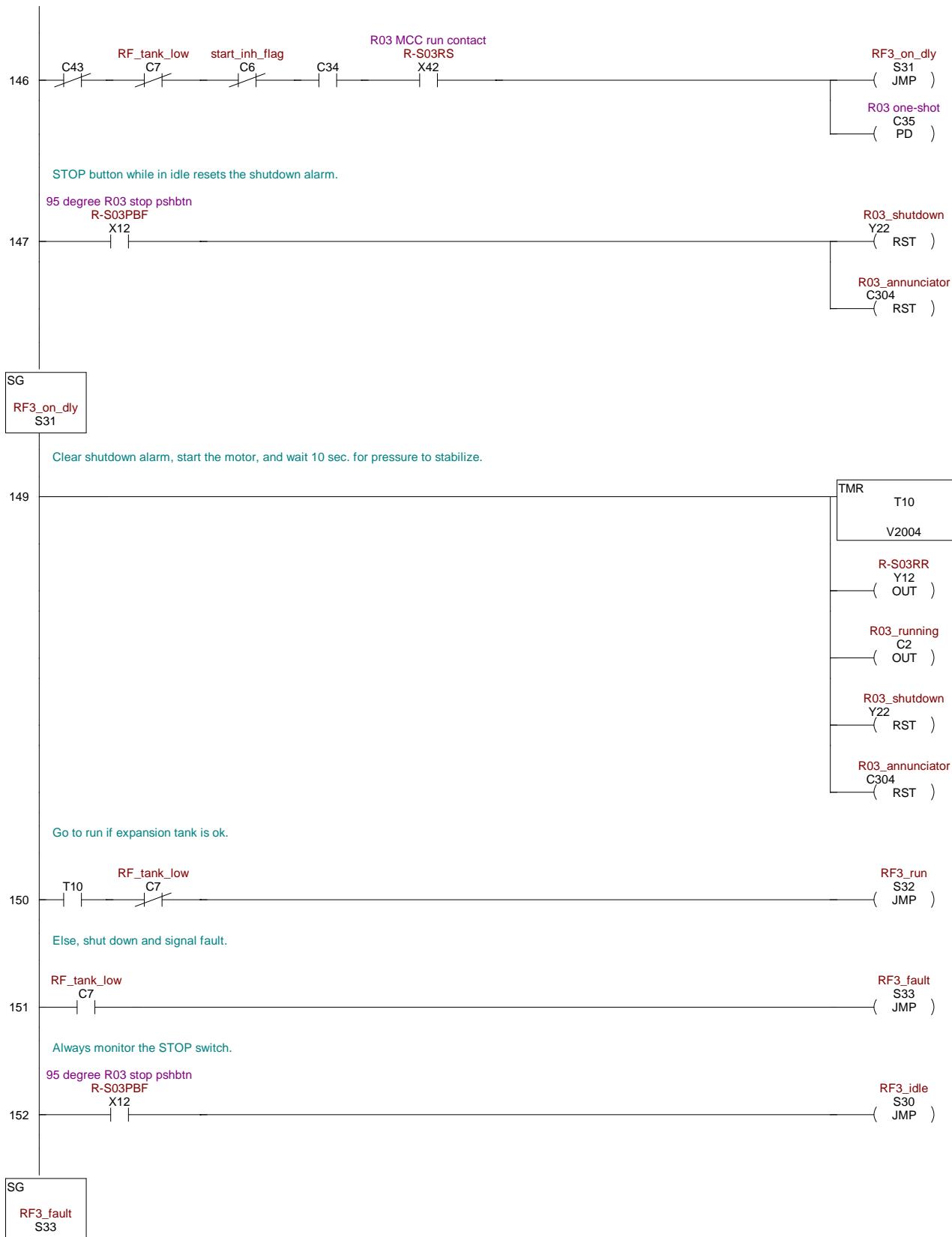


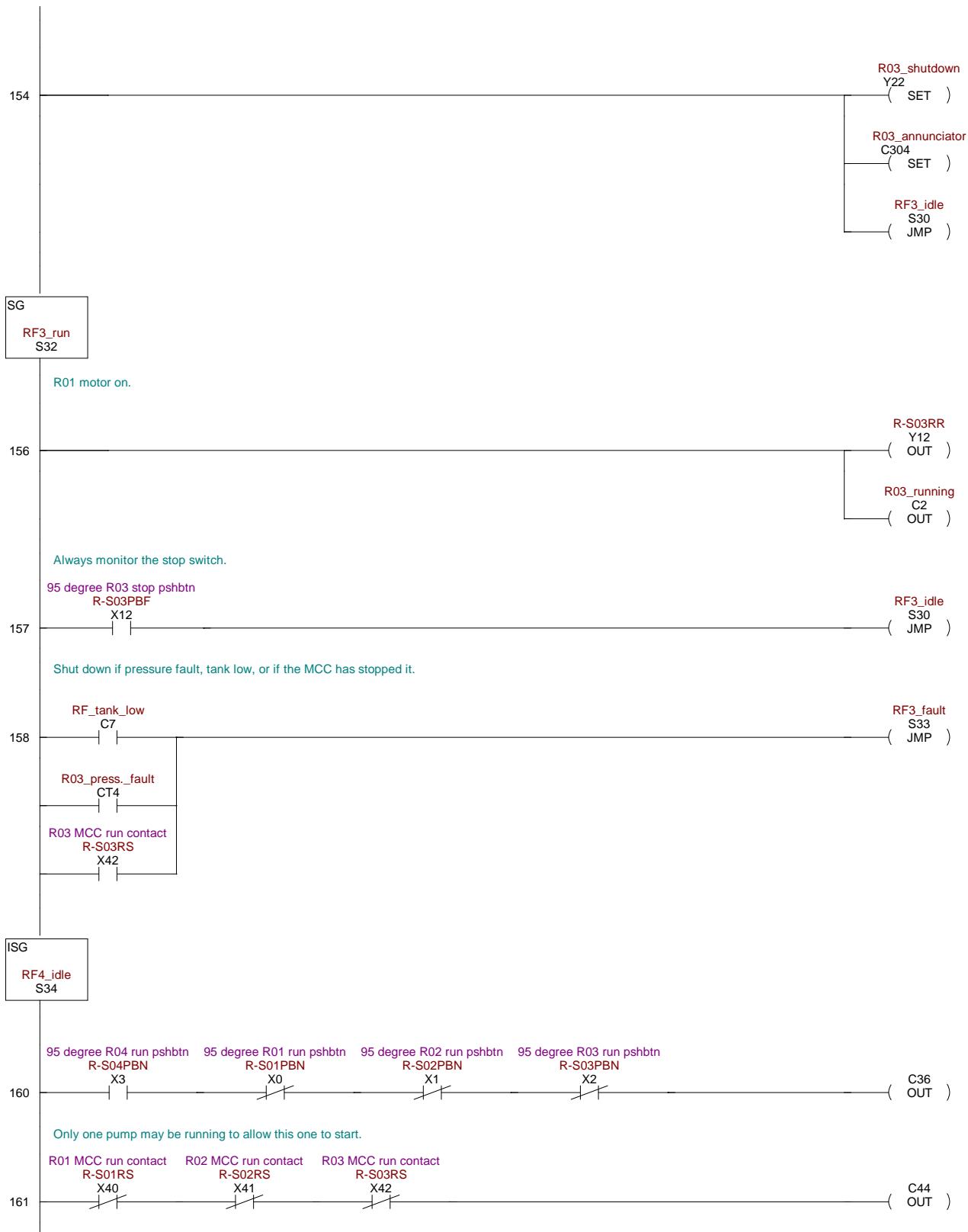
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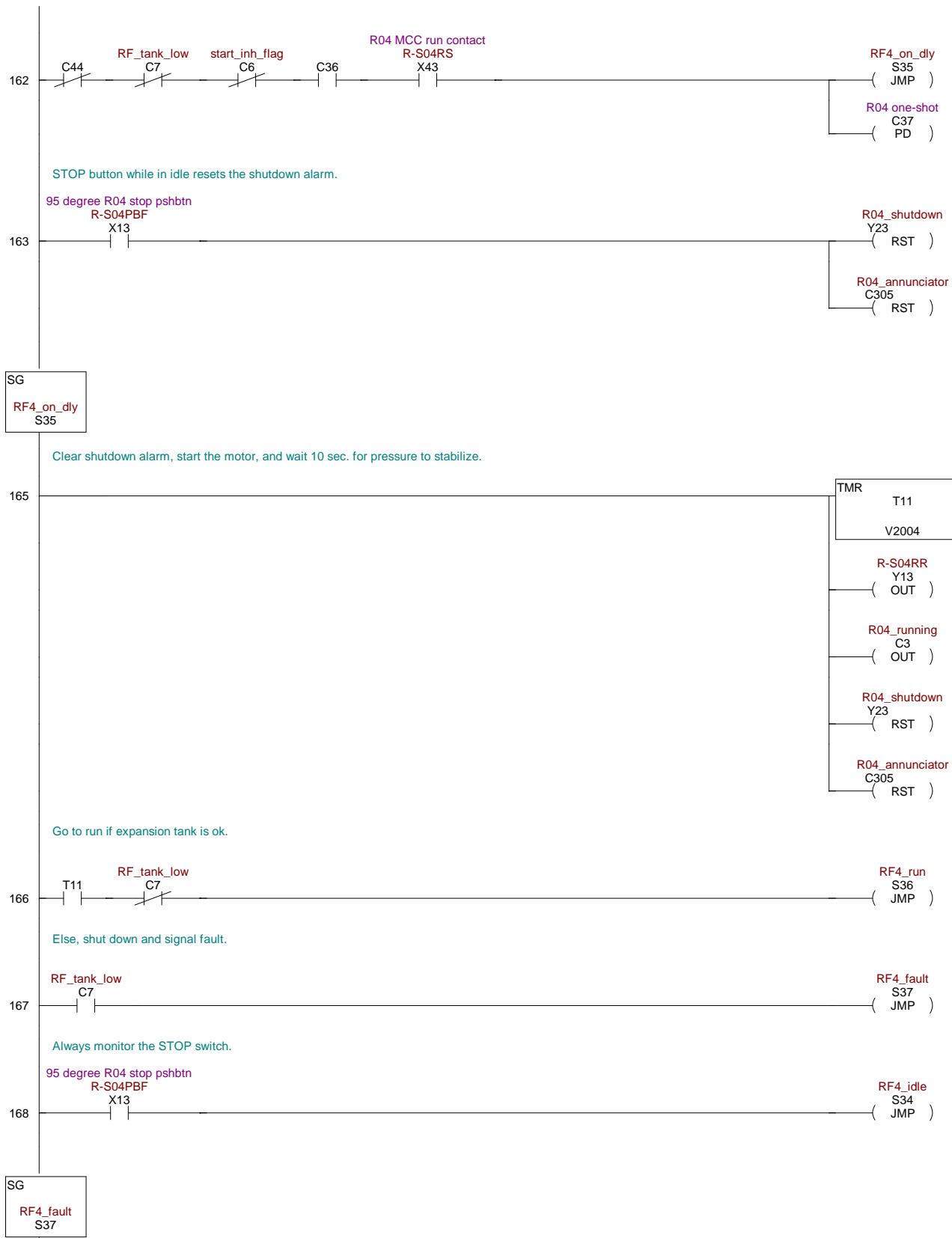


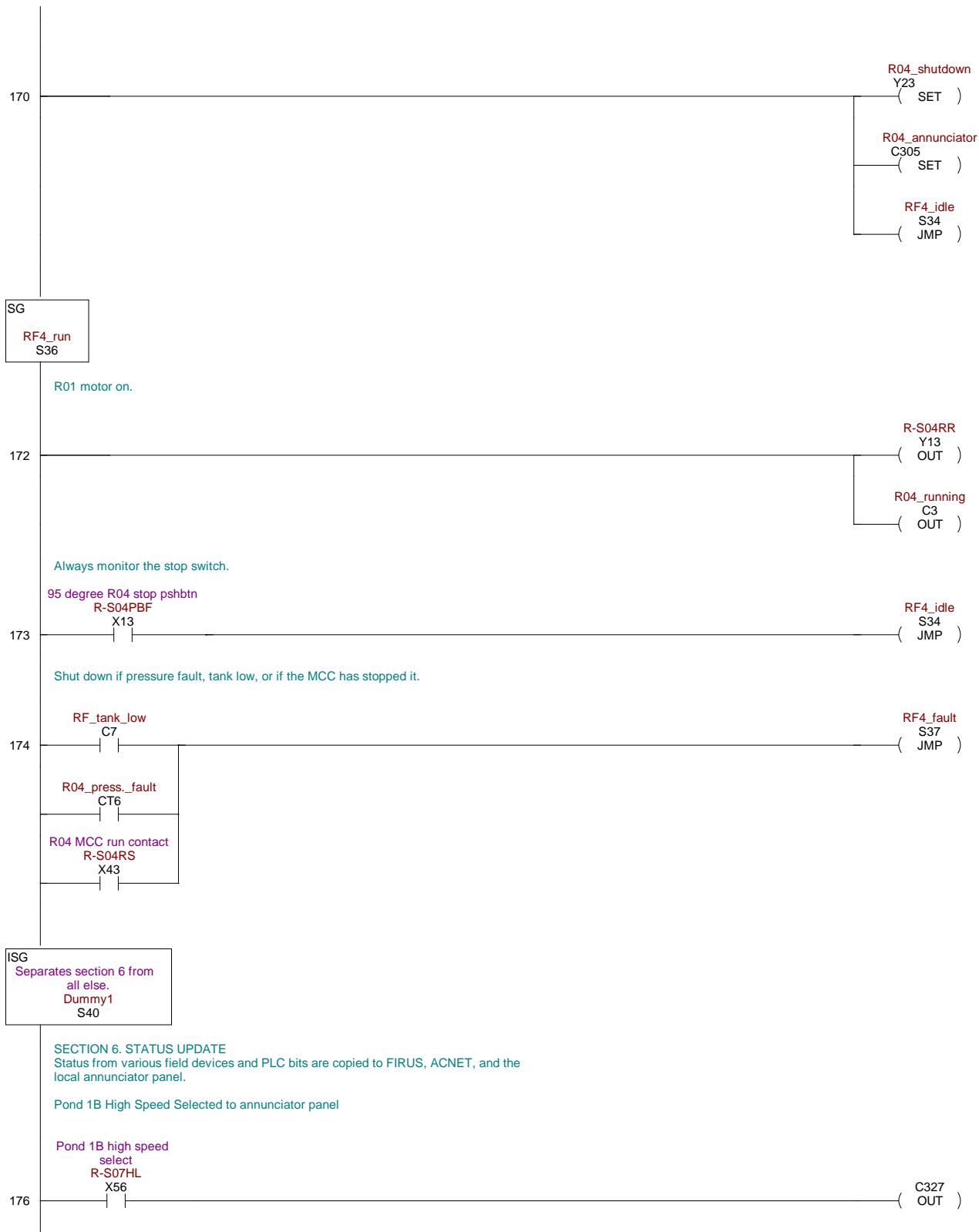
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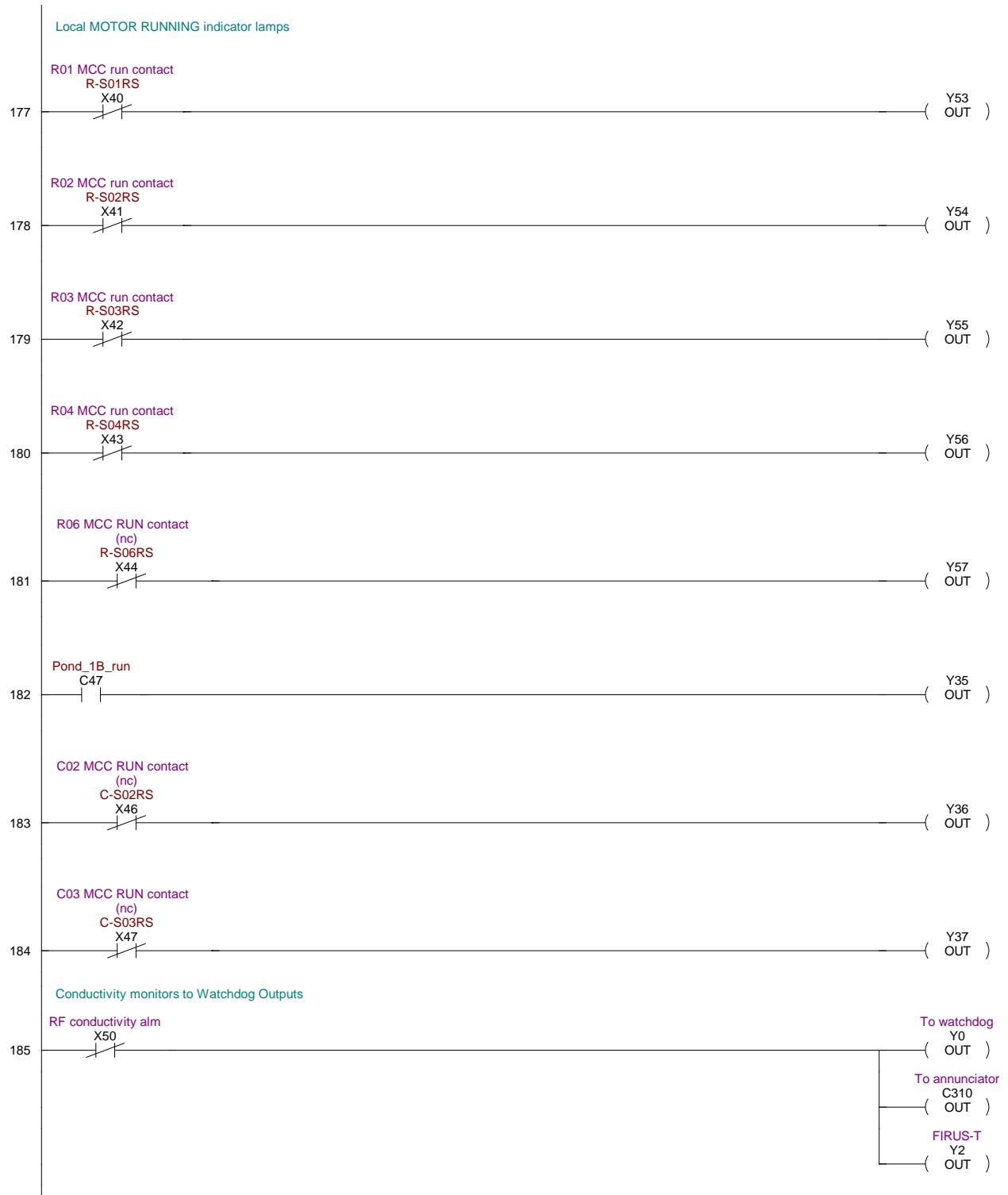
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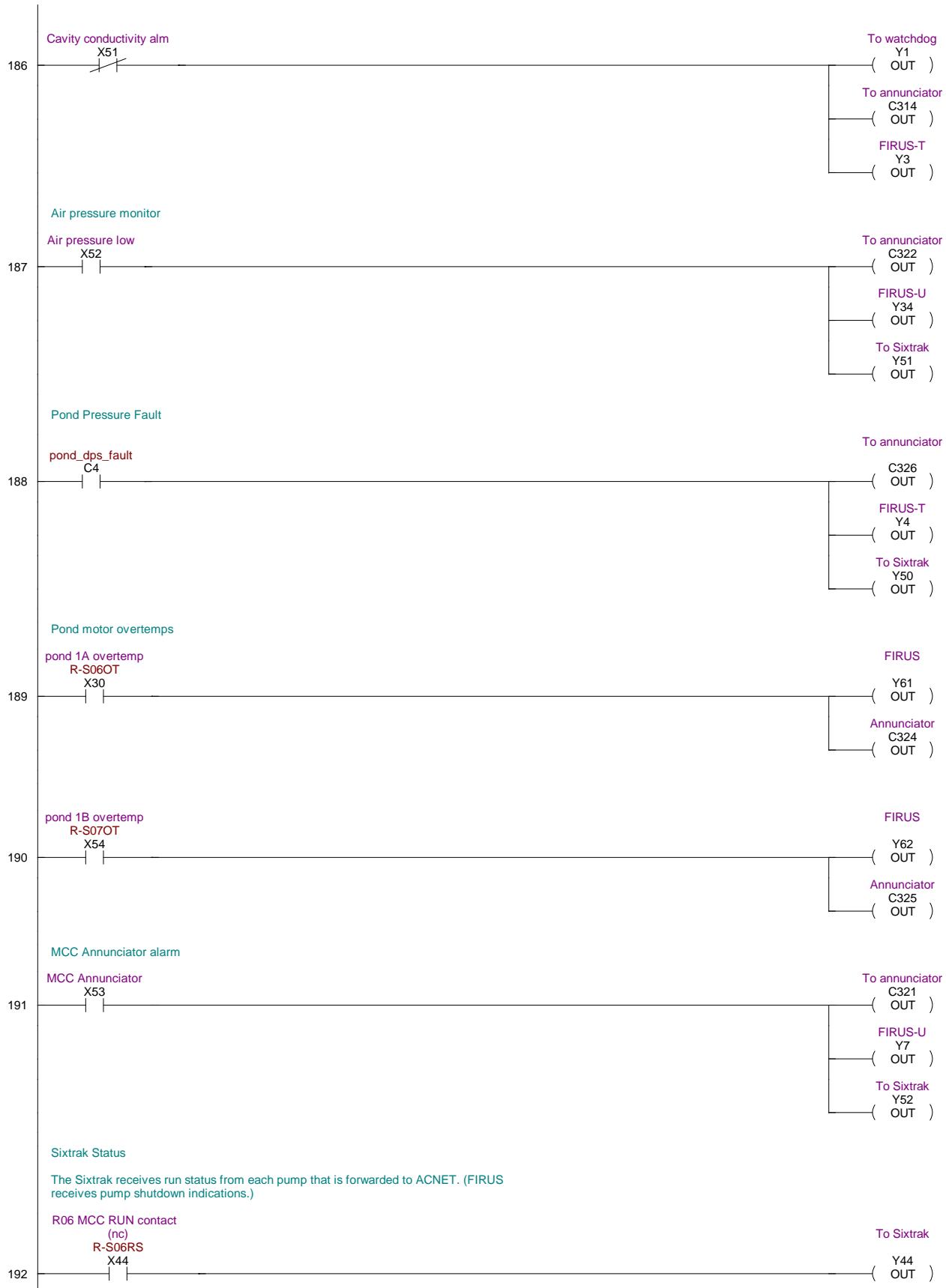


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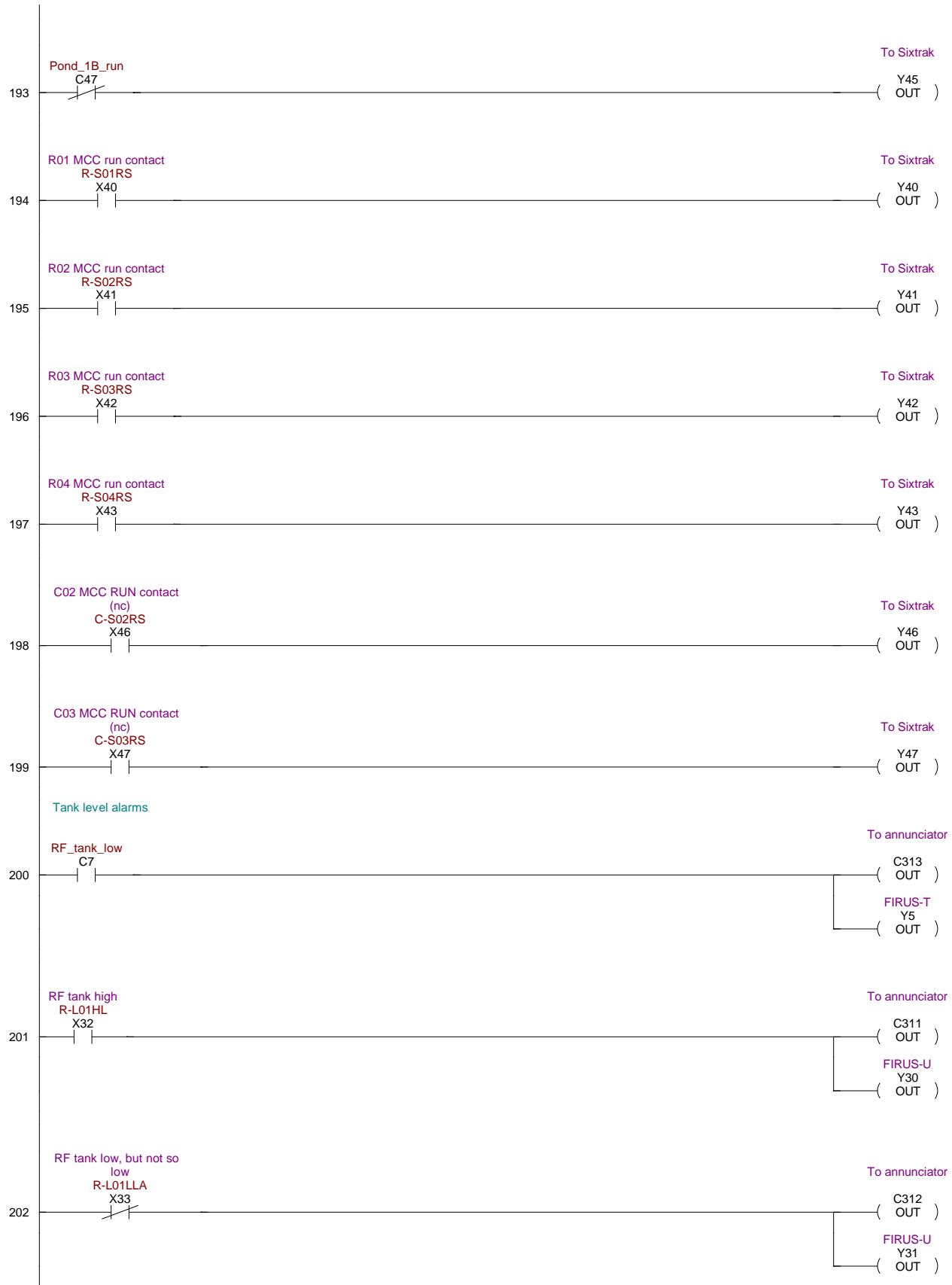


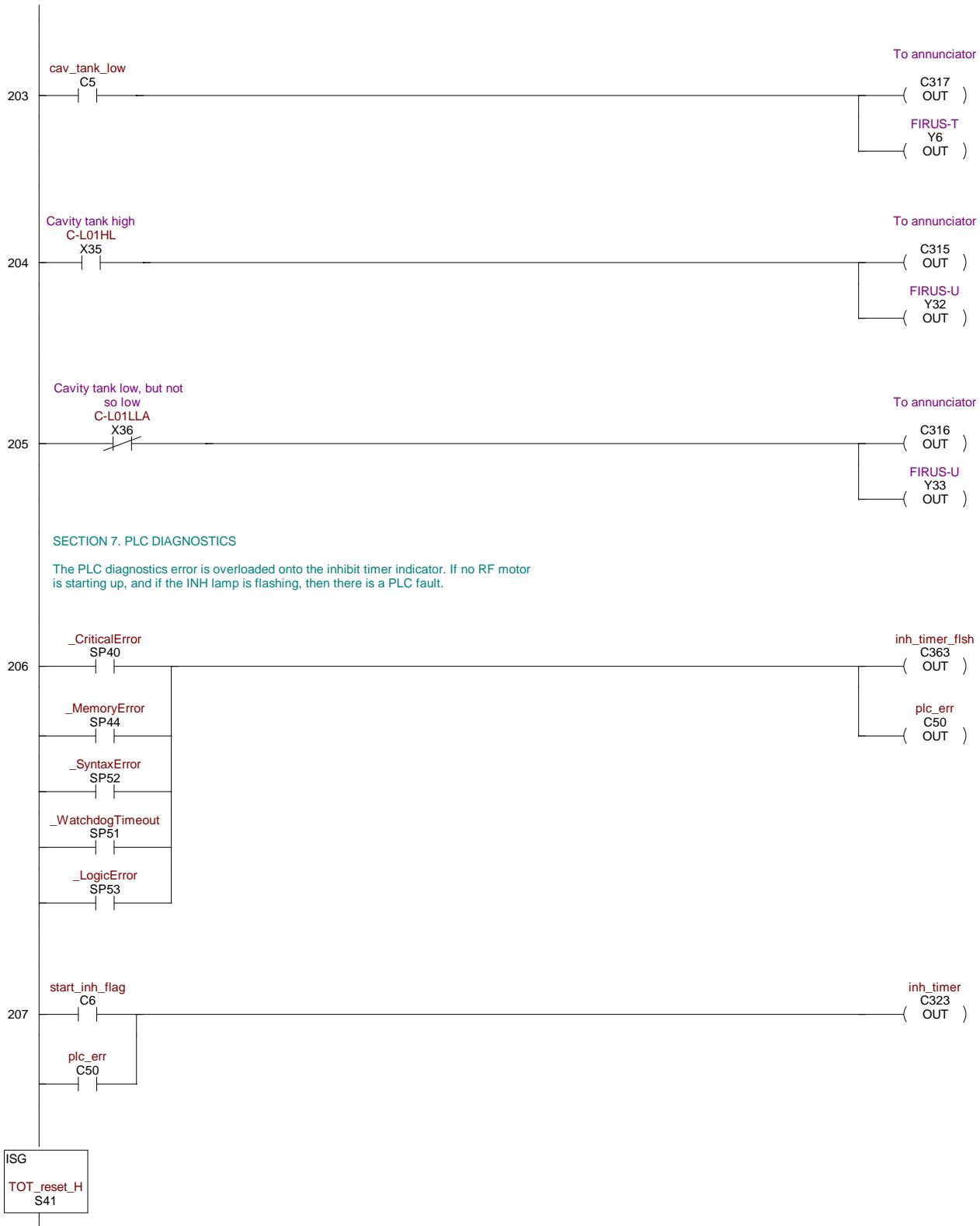
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